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UNITED STATES DEPARTMENT OF AGRICULTURE **Radio Service** OFFICE OF INFORMATION

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U. S. RADIO FARM SCHOOL

Mon. Jan. 2, 1928.

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U. S. Department of Agriculture

NOT FOR PUBLICATION

Crops and Soils Meeting No. 14.

SUBJECT: Seed Potato Disinfection.

ANNOUNCEMENT: Our farm club meets here in the school house every Monday, Wednesday, and Friday. On Mondays we always try to swap information on crops and soil problems. We get experts to come in and talk things over with us. Thatman talking there now is a specialist on disinfecting seed potatoes. Listen!---------

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EXPERT: Yes, important advances have been made in seed potato disinfection within the past five years.

WEBBER: In the way of applying the treatments?

EXPERT: Not only in applying the old treatment, but in the introduction of entirely new kinds of disinfectants.

WEBBER: Do you think disinfection is worth while?

EXPERT: Unquestionably'. Seed treatment will help prevent the loss due to scab and black scurf, and to a certain extent that caused by blackleg, too. Of course, disinfection has its limitations.

WEBBER: What is the best disinfectant?

EXPERT: Well, the organic mercury compounds are safe, convenient and pretty effective, but the hot formaldehyde method has beaten them for the control of scab, and is also the cheapest on a large scale.

WEBBER: What is the hot formaldehyde treatment?

EXPERT: It was introduced five years ago. It shortened the time required for treatment from a half hour to three minutes or less. Now one man can treat several hundred bushels a day. Fact is, community seed treating organizations have been arranged by some very active county agents so that all the seed needed in their section was treated at a community-owned plant as it was unloaded from the cars.

WEBBER: Does that pay?

EXPERT: That reduces the cost of five cents or less a bushel. Gains of 20 to 30 bushels of marketable potatoes per acre as a result of the treatment are common. There is a demand now for disinfection by the potato seed grower of the dealer, so that the buyer of small lots of seed potatoes can

get the benefit of large-scale, low-cost operations.

WEBBER: You don't have to treat the potatoes in big lots by that methods, do you?

EXPERT: In the hot formaldehyde treatment you have to have a very precise control of temperature. The temparature has to be within two degrees of 124 degrees. On account of having to be so precise, there is no real advantange over the slower cold soaks in the treatment of small lots of seed.

WEBBER: You mentioned some new types of disinfectants. What are they?

EXPERT: Yes, some of the disinfectants recently put on the market have proved very effective, especially against black scurf. They are too new to be recommended without qualification. In some sections they have not controlled scab very well, though elsewhere good results have been obtained. They are preparations containing mercury and other antiseptic materials like chlorine and carbolic acid, combined so as to get better results. They are called organic mercury compounds.

WEBBER: How are they used?

EXPERT: One of the most convenient forms is stirred up in water in which it does not form a solution, but instead a suspension like milk of lime. To treat the potatoes, you merely dip them in the liquid. Enough of the material sticks to the surface of the potato to even continue to be effective for a while after the seed is planted.

WEBBER: I've heard some folks say that seed treatment took too much time. They claimed it was impractical.

EXPERT: They were talking about the original methods of treating potato seed. The original method took an hour and a half for each batch of seed. That was utterly impractical for the grower with several hundred bushels to treat. That is what made farmers slow to take up the idea.

You know, disinfection of seed potatoes is not a new thing. Fact is, it was one of the earliest applications of antiseptics to the control of plant diseases. It was first used successfully in 1890. But research in recent years has given us a clearer idea of the value and the limitation of seed treatment.

The use of mercury bichloride or corrosive sublimate was originally borrowed from medical practice in order to disinfect seed potatoes affected with the scab, a disease for which there was then no known control except rotation. You've seen those hard, brown, rounded or irregular corky incrustations on the surface of the potato which characterize the scab disease. Well, the aim of the treatment is to kill the parasites in those scabby spots, and so prevent the disease parasites getting into the soil to infect the new crop of potatoes. Later formaldehyde largely replaced corrosive sublimate as a treatment for potato scab because it was safer to handle, although it was soon found to be less effective than the bichloride against the fungus disease known as black scurf, which attacks the sprouts early in the season

and sometimes entirely girdles them so that weak plants or misses result. To plant seed potatoes bearing this fungus is the surest way of inviting this form of sprout damage. The sprout damage can be cut down by sorting out from the seed stock all the potatoes that show the black specks which characterize the black scurf disease. Seed treatment however makes sorting in many cases unnecessary, though badly diseased.

Well, as we said, the trouble was that the treatment took too long. Further experiments, however, showed that scab could be controlled by shortening the treatment with either formaldehyde or bichloride to half an hour. It was also found that seed treatment reduced infection by the blackleg disease, although it did not eliminate that disease. The part played in all those diseases by soil infestation was studied. It was soon realized that scab could not be controlled in some cases by seed treatment alone; but that rotation, the use of green manures, and sulphuring the fields might be necessary. Experiments showed that the other serious diseases of potatoes, such as, late blight, mosaic, and leafroll, needed other methods of control. But it was established that seed treatment will help prevent the loss due to scab and black scurf, and to a certain extent, that caused by blackleg.

WEBBER: Well, in case you don't have enough seed to warrant using the hot formaldehyde treatment, how about that cold soak method?

EXPERT: In that, you use 1 pint of formaldehyde to 30 gallons of water; or, if you use the corrosive sublimate, 2 ounces of the bichloride to 15 gallons of water.

WEBBER: And you soak the potatoes for half an hour in that?

EXPERT: A half hour for scab, and half hour or more for black scurf. Do not put the corrosive sublimate in to any kind of metal container, but use wooden or stoneware vessels.

Remember it is a deadly internal poison, though it will not hurt the skin.

WEBBER: When should the potatoes be treated?

EXPERT: Preferably, you should treat seed potatoes before they sprout. Always before cutting, except that they may be treated after cutting in the dip method with organic mercury.

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UNITED STATES DEPARTMENT OF AGRICULTURE

**Radio Service**

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U. S. Department of Agriculture

U. S. RADIO FARM SCHOOL                Wed., Jan. 4/28

NOT FOR PUBLICATION

Farm Economics Meeting No. 14.

SUBJECT: Market News Aid in Marketing.

ANNOUNCEMENT: Yes, every Wednesday our club here in the schoolhouse talks over the business end of farming. For instance, last week we talked about the inspection service on farm stuff. The week before that we talked about standards. Just now, one of our members asked the Department of Agriculture man about market news --- Yes, that's the Department man talking now -----

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EXPERT: Yes, the Federal market news system has branch offices in all important markets. Those branch offices are tied together by a spinal cord of leased wire. There are nearly 8,000 miles of leased wire, with 38 offices and over 50 telegraph operators.

BRUCE: Does the news of all the markets go out through Washington?

EXPERT: No. The headquarters of the service is in Washington, but the reports are not sent in there to be distributed. The leased wire system now extends from Boston on the east through the principal markets such as New York, Philadelphia, Washington, Pittsburgh, Cincinnati, Chicago, St. Louis, Kansas City and Denver to San Francisco, with branches running north to Minneapolis and south to Atlanta, Ga. and Jacksonville, Florida, and to Fort Worth, Texas.

BRUCE: Just how does it work? How do they get the news?

EXPERT: Well, the system is operated through offices of specialists on each market commodity who are close to the market of that product. For instance, in the livestock office at the Chicago Stockyards, there are special reporters on cattle, sheep and hogs. They watch the sales as actually made in the yards. They are in constant touch with the movement of cattle in their yards. Their office is in the middle of the yards. From the office they send telegrams frequently during trading hours. Those telegrams are copied in the livestock offices in all other such markets. There is a similar office in the midst of the stockyards at East St. Louis, another at Kansas City. There are others at Omaha and Fort Worth. It is much the same with fruit and vegetable market news reporters. They are right in the midst of trading in the South Water Market, Chicago, near the docks in New York, and in other markets. The motto of the market news service is: today's markets today.

The daily program begins with reports on shipments and receipts at the market. These reports are put on the leased wire the first thing in the morning; and many of these offices begin work at 4:00 A.M. As sales are begun, flashes of opening prices are put on the wire and released in other markets dealing in the same commodity. This procedure goes on until about noon, when a more complete report of the day's market is prepared and released over many radio stations. Later in the day, mimeographed reports are run off and mailed. Other reports are given to the newspapers, numerous telegrams are sent to shippers and farmers associations. The story of the day's transactions in the market is complete by 4:00 P.M.

BRUCE: What good does that do the individual farmer?

EXPERT: This market news is designed to help each individual producer answer the question as to when and where to market. In these days of motor trucks and good transportation, you don't have to sell always through local buyers. Every farmer should be anxious to study market conditions in all sections he can get to, so he can sell in the one that will bring the best prices.

BRUCE: I understand the idea; but how can a farmer get these market reports?

EXPERT: Why, there is no excuse for any farmer not knowing his market. Nearly a hundred radio stations cooperate with the Department of Agriculture in flashing these reports throughout the country. The facts are in the air. All you have to do is to equip yourself to receive them. State bureaus of markets and departments of agriculture cooperate with the Federal department in making this service complete, in many cases. State departments help in gathering and distributing the news, usually giving particular attention to local state products.

BRUCE: How many farm products are covered in those reports?

EXPERT: We now get comprehensive reports on fruits and vegetables; livestock, meats, and wool; dairy and dairy products; hay, feeds,and seeds; and cotton. The reports on grain are confined to weekly reviews of the farmers' markets; since the department has never entered the field of reporting daily grain prices, in detail. That is quite effectively done by the grain exchanges.

BRUCE: I've heard some farmers say that every once and awhile they listen in on these market news reports, but they never had done them any good ---

EXPERT: Of course, one day's market report considered alone is not much value. To understand marketing, you must watch the market constantly. The value of the market news to the farmer depends on his making constant use of it. He must study the reports and note the price changes. He must note the kinds and qualities of products that bring the best prices. He must watch

the volume going to market, and study the factors that bring about up or down swings in the markets.

BRUCE: How do you mean study the up and down swings?

EXPERT: Well, supplementing the daily reports which you can get by radio the Bureau of Agricultural Economics of the department issues weekly reviews of the market on each product. These weekly reviews point out the changes which have taken place and why. When the season is over for any particular year or crop, the Bureau issues a summary of the season on that crop or livestock. These seasonal summaries also shows why prices have changed. Let's take potatoes, for instance. Every potato grower should get and study the daily market prices on potatoes, the weekly potato review during the marketing season, the summary of the potato season which is issued when the crop is mostly marketed, and the crop estimate reports on production which has most to do with determining price.

BRUCE: Where do you get those weekly and seasonal summaries?

EXPERT: Much of the information I mentioned is published in the monthly publication, Crops and Markets. It is issued by the government for 60 cents a year. It is certainly worth five cents a month to a farmer to have available the facts regarding his business. Most business men pay hundreds of dollars to experts to gather these facts for them. The farmer has it done by his government. And the reports he gets from the government are neutral and unbiased. All markets were reported on the same basis so that prices in one place can be fairly compared with those in another. All the daily and weekly reports of the department are free. There is a charge only for the printed publication.

Anything else you may want to know about the Market reports on any particular product, just write the Market News Service, U.S. Department of Agriculture, Washington, D. C.

UNITED STATES DEPARTMENT OF AGRICULTURE Radio Service OFFICE OF INFORMATION

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U. S. Department of Agriculture

U.S. RADIO FARM SCHOOL Fri. Jan. 6, 1928

Livestock and Dairy Meeting No. 14.

SUBJECT: Dairy Barn Building.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Every Monday, Wednesday and Friday our farm club meets here in the school-house. Fridays we've set aside for talks about livestock and dairy questions. For instance, Johnson, over there by the blackboard, just asked that expert from the Department of Agriculture to give him some advice on building a dairy barn. That's what started them -- if you listen in on them you might pick up some pointers ------

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JOHNSON: You say it is best to have not less than 500 or more than 1,000 cubic feet of air space per cow in a cow stable?

EXPERT: Yes. In the North, 500 to 600 cubic feet of air per cow is enough. If you provide more air space than can be kept at a reasonable temperature by the body heat of the cows, the stable may be uncomfortably cold. In the South, 1,000 cubic feet of air per cow is about right. But please remember, Johnson, a cow not only needs air but she needs pure air.

JOHNSON: You mean the barn should be well ventilated?

EXPERT: That's the point. Tightly built barns are apt to be damp unless you provide ventilation. The stabling of cows in dark, poorly ventilated, damp barns affects their health. It may spread disease. You can only meet the demand for clean, wholesome milk by having healthy cows. Ventilation in barns and other buildings in which stock are kept is just as necessary as a health measure as is ventilation in homes or schools or factories. Not only that, but tests have shown that the quantity of milk yield is affected by sudden changes in the temperature of the barn. To prevent sudden changes in barn temperature you need a well-regulated ventilating system.

JOHNSON: Is the old-style slatted cupola all right as a ventilator?

EXPERT: No. It is not. It is liable to give a down draft when the wind blows. That means sudden changes which cut down the quantity of milk. There are ventilators especially designed for stable use on the market.

JOHNSON: How big a ventilator would you have for, say a twenty cow barn?

EXPERT: Well, in building a ventilating system for that size barn only one outlet flue is needed. It should have an area of about one-fifth square foot per cow; possibly a little less in cold climates and a little more in warm climates. A flue with an area of one square foot is enough for five cows. A flue with an area of four square feet is plenty for twenty cows. The area of outlet flues, you know, is based on the principle that the air will rise in a flue so that it will carry off a certain number of cubic feet of air a minute. An equal amount of fresh air is drawn in through the inlet flues. That sets up the air circulation and keeps the air in the stable pure. The amount of foul air carried off by the flues may vary considerably, since cows give off a constant supply of foul air and moisture. If your outlet flues are not working properly, the foul air will stay in the barn. Moisture will condense on the walls and ceiling. The stable will become damp and unhealthful.

JOHNSON: Is it better to have one or two big outlet flues or a number of small ones?

EXPERT: One or two big ones are more efficient. The outlet flues should be air-tight and as straight as possible.

JOHNSON: Why's that?

EXPERT: Because bends cause air friction. Bends cut down the flow of air. If it is necessary to have bends in the outlet flue, you should make the flue bigger to take care of the difference in the outflow of air due to the bends. The outlet flue should start at the ceiling.

JOHNSON: How about the in-take flues for the fresh air?

EXPERT: Well, your fresh-air intake flues should be small in area. Place them every seven to ten feet or, if necessary, twelve feet apart along the side walls. The openings on the outside the building where the air enters the flues should be at least five feet below the openings of the fresh-air flues inside the stable. The openings into the stable should be just below the ceiling.

JOHNSON: What's the idea in that arrangement?

EXPERT: That prevents the warm air near the ceiling from leaving the building through the intake flues. If the outside openings were the same height or higher than the openings inside the barn, the warm air would go right out the flues.

JOHNSON: How big do you make the intake flues?

EXPERT: Well, in extremely cold climates, the area of the intake should be less than that of the outlet. Under most conditions, however, the total area of all the inlet flues should be about equal to the total area of the outlet flue or flues. On the outside of the building, you should protect the intake flues from the weather by a hood. On the inside, you should have dampers on the inside openings at the ceiling, so some of the intake can be closed when it is necessary. In barns that are plastered on the inside, the flues should be protected by suitable insulating material between the flue and plaster.

Unless you do insulate them, any moisture that touches the walls at the points where the flues are located will condense.

JOHNSON: How much window space would you allow for?

EXPERT: You need four square feet of glass per cow. It is better to have much more than that, except in extremely cold climates. In the north the objection is sometimes made that in the winter a great deal of glass results in a loss of heat through the windows. But you can remedy that by using storm sash. Provide plenty of window space. Sunlight is absolutely necessary to the health of the cows. And windows should be well distributed, too, so that the stable will be well lighted throughout. The height of the windows should always be greater than the width. Taller windows always expose more floor space to the sun than low, wide windows do.

JOHNSON: If the barn is built so its length runs north and south, it will get more sunlight inside, won't it?

EXPERT: Yes. And, of course, you should locate it so other buildings won't cut off any of the sunlight. Another thing. You will find a windbreak of trees or buildings on the north side in the direction of the prevailing cold winds will be a big advantage in winter. And in planning the building, you should consider what kind and size of equipment such as litter and feed carriers, milking machines, and hay hoists, you expect to use. By figuring on those things in your plans, you will save a lot of unnecessary cutting and fitting.

JOHNSON: How wide would you make the stalls?

EXPERT: The usual width is 3½ feet between centers of stall partitions, but the width varies from 3 to 4 feet. The length of the cow platform is usually form 4½ to 5 feet, depending upon the size of the cow. A big cow needs a long platform. It is a common practice to vary the length of the platform from one end of the row of stalls to the other. The gutter is usually 7 to 9 inches deep and at least 16 inches wide. It should slope a little from the stall platform toward the drain. You should make the mangers about 2 feet wide with the back of the manger sloping away from the cow.

In all your planning, you should keep in mind that you want to build it so as to provide comfortable quarters for the cows and save time and work for yourself.

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UNITED STATES DEPARTMENT OF AGRICULTURE Radio Service OFFICE OF INFORMATION

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Northeastern States.

U. S. RADIO FARM SCHOOL

Mon. Jan. 9,1928

Crops and Soils Meeting No. 15 (1)

SUBJECT: Value of Improved Pastures.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Mondays we meet here in the school-house to talk over crop and soil problems on the farm. This is a sort of club, you know. But it is even more than that. We get a lot of good, practical information at these meetings. For instance, there is a Department of Agriculture specialist on pastures talking to that crowd of men over there now. Let's go over and see what he is telling them---

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EXPERT: --- No,--- It is not surprising at all.--- What could you expect? You know, the practice of using the poorest land on the farm for pasture is traditional in American agriculture.--- There is no wonder the returns per acre for pasture have been low compared with the acre return from cropped land.-- And, you see what that leads to, don't you Clark? Poor land, low returns. Low returns, more neglect. --- A good many of you farmers don't seem to appreciate the value of improved pastures.

CLARK: Just what is the value of improved pastures compared with unimproved?

EXPERT: Well, even when the term improved is made to include all tame grass pastures, whether they are the result of intelligent planning, as they should be, or not, the carrying capacity of improved pastures in the humid part of the United States is twice that of the unimproved.

Of course, that doesn't show the possibilities of pastures which have been improved by an intelligent choice of the best pasture plants; and stimulated to highest productiveness by proper fertilizers: and used in a scientific manner. When you confine the comparison to such pastures as those, the value of improved pastures is more pronounced.

CLARK: What should be done to improve pastures?

EXPERT: First. You should clear off the brush and enough trees so that they will not interfere with the growth of the pasture plants.

Second; You should seed productive pasture plants on pastures where such plants are not already present.

Third; You should control the weeds and brush by mowing the pasture once or twice a year and encouraging the growth of the better grasses and legumes.

Fourth; You should apply lime where needed and fertilizers to encourage the growth of desirable grasses and legumes.

Fifth; You should provide temporary pastures of Sudan grass and sweet clover so that the rate of intensity of grazing of the permanent pastures may be properly regulated without depriving the animals of their regular feed requirements.

CLARK: And you say, you think it will pay to do all that?

EXPERT: Will it pay? Just let me give you the figures of what has been demonstrated by experiments at a number of State agricultural experiment stations.

CLARK: Go ahead. Take lime, for instance. What is the difference in the yield before and after liming?

EXPERT: Let's take some experiments made in three separate localities in New York. In all three localities, representing the most depleted, the generally unproductive, and the high-grade pastures of the State, the application of 200 pounds of acid phosphate to the acre gave an average increase of 20 per cent in total vegetation under all three conditions. The application of 2000 pounds of lime to the acre gave an average increase of 100 per cent on the poorer pastures and 10 per cent on the best pastures. The lime also improved the quality of the pasture so there was a big increase in the clover and a 25 to 65 per cent decrease in the quantity of weeds.

In Pennsylvania the pasture experiments were established on abandoned farm land which represented three of the principal soil types of the State. One of these soils was so poor that it was incapable even of supporting a growth of native weeds. Well, each field was seeded to a mixture of Kentucky bluegrass, sweet clover, and white clover.--- The average annual acre value of the pasture on the untreated soil was only $3.57. When treated with lime alone the value was $12.87. With lime and acid phosphate it was $25.20. With lime, phosphate and potash it was $32.31. And with a complete fertilizer plus lime; that is, with lime, phosphate, potash, and nitrate, the average annual acre value was $40.92.

CLARK: How much did the fertilizers cost? That wasn't net return was it?

EXPERT: No. The net return, or the acre value less the cost of fertilizers, was $10.62, $21.16, $26.96, and $30.36 respectively. In other words, this evidence leads to the conclusion that bluegrass pasture in Pennsylvania improved by the use of a complete fertilizer and lime is worth eight and one-half times as much as the untreated pasture. The carrying capacity of these pastures which was almost nil on the poorer soils, and was estimated at 4 acres per cow on the better soil, was increased so that the average for all soils was less than an acre for each cow.

Pasture experiments in southern Ohio showed that the application of 3,000 pounds of ground limestone and 400 pounds of acid phosphate per acre to a hill-

side pasture resulted in the production of over twice as much beef as on untreated pasture.

In Wisconsin, it was found possible to improve old worn-out bluegrass pasture by seeding sweet clover on the frozen blue grass sod early in March. Without any cultivation being given the land, the yield the following year was nearly three times as much on the pasture where sweet clover was seeded as on the part not seeded. That treatment is most effective, however, on pastures that are badly run-down and producing little.

At the North Dakota Agircultural Experiment Station at Fargo sweet clover seeded on cultivated land was used very effectively as pasture. Steers pastured two years on such sweet clover during the period from May 1 to August 15, made an average daily gain of 1.92 pounds a head for the grazing period.

In the North Central States sweet clover is in good condition for grazing from early spring up to August 1 and Sudan grass sown May 15 or June 1 will be ready to pasture by July 15. Those two crops will carry about 2 head of mature animals an acre from very early spring until the Sudan grass is killed by frost in the fall. They answer all the needs for supplementary pastures through the whole grazing season. If you use them intelligently you can keep your herd at a very low cost for 6 to 7 months of the year.

Preliminary experiments in Iowa indicate that old bluegrass pastures may be improved and kept in good condition by disking, reseeding, manuring, and proper fertilization. The highest net returns $29 per acre were obtained by disking, reseeding and applying 200 pounds per acre of acid phosphate.

CLARK: Did acid phosphate give bigger profits than manure?

EXPERT: Yes, the use of manure in place of acid phosphate resulted in a net return of only $15 an acre.

CLARK: I'm glad to know that, because I hardly have enough manure for the cropped land.

EXPERT: Yes, it is encouraging to know that acid phosphate brings the bigger profits. But the main idea I wish you men to get is that it pays to improve pastures. We've neglected them too long already.

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JAN
U.S. Department of Agriculture

Cotton Belt.

U.S. RADIO FARM SCHOOL

Mon. Jan. 9, 1928.

(NOT FOR PUBLICATION)

Crops and Soils Meeting No. 15. (2)

SUBJECT: Value of Improved Pastures.

ANNOUNCEMENT: Mondays we meet here in the school-house to talk over crop and soil problems on the farm. This is a sort of club, you know. But it is even more than that. We get a lot of good, practical information at these meetings. For instance, there is a Department of Agriculture specialist on pastures talking to the bunch of men over there now. Let's go over and maybe we can pick up some good hints ---------

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EXPERT: I wish to emphasize to you farmers the importance of improved pastures. There is no part of the United States where improved pastures are so easy to get or so valuable as in the Cotton Belt. But, at the present time, only 20 per cent of the pastures in the Cotton Belt are classed as improved.-----

CLARK: What do you menn, 'improved'? You mean those growing tame grasses?

EXPERT: Well, that's about the only difference in much of the pasture classed as improved in agricultural reports. Probably most of our bluegrass, and Bermuda, and carpet grass pastures in the South are in that class. The land has never been cultivated. The tame grasses have just been sown and left to fight it out with the native plants. Even when the term 'improved' is made to include all such pastures as those, which are the result of no intelligent planning, the carrying capacity of improved pastures in the humid part of the United States is twice that of the unimproved.

CLARK: We don't get much out of pastures, compared with crop land.

EXPERT: It is not surprising. The practice of using the poorest land on the farm for pasture purposes is traditional in American farming. The relatively low returns and consequent lack of appreciation of the possibilities in pastures has resulted in continued neglect.

CLARK: What should we do to improve our pastures.

EXPERT: Well, there are certain proved methods you should follow. Of course, you should clear off any brush on the pasture, and enough trees so they won't interfere with the proper development of the pasture plants. If productive pasture plants are not already there, you should seed your land with carpet grass, or Bermuda grass, or lespedeza, or white clover, or bur clover or black medic.

CLARK: Suppose you already have a pasture of that kind, how would you go about improving it?

EXPERT: You should control the weeds and brush and encourage the growth of the better grasses and legumes. You can do that by mowing the pasture once or twice a year if necessary. Mowing Bermuda pastures also makes the grass more palatable. You should apply lime where it is needed and fertilizers, so as to encourage the desirable grasses. While you are improving the permanent pastures, you may have to provide temporary pastures of Sudan grass, napier grass, oats, rye, vetch, and kudzu, so as not to deprive the grazing animals of their regular feed requirements.

The basis of all good pastures in the moist sandy solid of the Gulf and Atlantic Coastal Plain is carpet grass and lespedeza. Both are already widely distributed. If there is not enough of those plants on your land to make good pasture with close grazing, you should sow some more.

CLARK: How much does it take to the acre?

EXPERT: Eight pounds of carpet grass and 16 pounds of lespedeza sown in February is about right. Mow the brush and weeds and burn them so the seed will lodge directly on the soil and the young seedling plants will get plenty of sunlight; and that is all the preparation of the ground you need.

CLARK: How does that kind of pasture compare with just ordinary broom sedge and wire grasses?

EXPERT: One acre of good carpet grass pasture will support one cow for 9 months of the year. It takes 10 or more acres of the native broom sedge and wire grasses to do that, and the gains in flesh are only one-fourth as big as on carpet grass pasture. Yes, carpet grass pasture is worth 10 to 20 times the value of native pastures.

CLARK: Actually 10 to 20 times as much?

EXPERT: Yes, that is a conservative estimate. Just to show what improved pastures mean, take that survey of 600 pastures in South Carolina made by the Extension Service of Clemson College. Part of those pastures was carpet grass and part Bermuda. The Extension Service found that the average carrying capacity of the carpet grass pastures was 1.3 animals per acre for a 9 months grazing season. One of the big railroad companies of the South through its agricultural organization held a number of pasture demonstration in 1923 and 1924. Carpet grass pastures in Georgia and Alabama showed an average carrying capacity in 1924 of 1.46 animals per acre over a total of 1174 acres for an 8-month grazing period. In 1923 the average was 1.32 head per acre.

CLARK: How much better did the cattle do on carpet grass than on native grasses?

EXPERT: The Coastal Plain Experiment Station at McNeil, Mississippi, did some work along that line. They found that cattle on carpet grass gain continuously

from April to December. They found that cattle on the native grass pastures gained just as fast as on the carpet grass, up to the middle of June. After that they lost weight steadily. That difference showed up even when the animals were allowed 10 acres a head on native grass pastures and less than 2 acres on the carpet grass.

On the drier upland soils of the Coastal Plain, the clay and silt soils of the Piedmont, and the black prairie soils of Alabama and Mississippi, a combination of Bermuda grass, Dallis grass, and lespedeza with white clover, bur clover and black medic added for winter grazing, is the best combination for pastures. In South Carolina, the Extension Service of Clemson College in their survey of pastures found that Bermuda grass and lespedeza alone would support cattle at the rate of one animal unit to 3 acres for about 6 months. When bur clover and white clover were also present in the pastures, the pastures furnished grazing during practically the whole winter as well.

Some of the best pastures on the rich soil of the Black Prairie Belt of Alabama and Mississippi are a mixture of Bermuda grass and legumes which, it is said, will carry two head of cattle per acre for 10 months in the year.

On the silt soil of the Iberia Livestock Experiment Farm near Jeanerette, Louisiana, a pasture of Bermuda grass, lespedeza, and white clover, has produced gains of about two pounds per head per day on the young cattle during the summer months. That pasture is remarkably free from brush and weeds, but it is mowed twice a year in order to stimulate the production of fresh leaves. That prevents the grass getting stemmy and unpalatable and the cattle graze it uniformly rather than in spots. I could give you numerous other examples. But I guess you can see from the ones I've already given you that the rewards of intelligent effort to improve pastures in the Cotton Belt are especially big.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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Western States.

U. S. RADIO FARM SCHOOL Mon. Jan.9,1928.

Crops and Soils Meeting No. 15. (3)

SUBJECT: Value of Improved Pastures.

ANNOUNCEMENT: Mondays we meet here in the school-house to talk over crop and soil problems. This is a sort of club, you know. Fact is, it is more than that. We get good, practical information at these meetings. For instance there is a United States Department of Agriculture specialist on pastures talking to those men over there now. Let's hear what he is telling them -- it might be something worth while. -------

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EXPERT: --- Yes, you should give more attention to the improvement of your pastures. Some of you don't seem to realize the value of improved pastures----

CLARK: How can we improve our pastures? Except where irrigation is possible, we have to depend on the rainfall! It is impractical for us to try to improve pastures by using tame grasses and legumes and fertilizers, as they do in damp country.

EXPERT: There is something in what you say, Clark. The western half of the United States, exclusive of the Pacific Slope, is made up of the Great Plains with its semiarid climate and the Inter-Mountain section which is more or less arid. As you say, except under irrigation pasture improvement is limited to proper methods of management designed to encourage the productiveness of the better native plants. But it is that kind of improvement that I am talking about.

CLARK: How can we improve the natural pasture, then?

EXPERT: Well, you may know, in the past ten years pasture management investigations have been in progress at several points in the Great Plains and also in the Inter-Mountain section where the Forest Service of the United States Department of Agriculture carries on grazing experiments and vegetation studies in the national forests and on ranges on public land. You stockmen should understand what they have found out about range management and use their methods on your own land. Of course, you should modify their system to suit your particular region and the kind of stock you are handling.

CLARK: Just what kind of a system do they use?

EXPERT: Well, one of the principal methods of improving the natural pastures is the deferred and rotation system of grazing. It will not only tend to

preserve the better pasture plants, but will even increase the productiveness of your grazing lands.

CLARK: Just how do they do it?

EXPERT: Well, here's an example of this system of grazing that is under test at the Northen Great Plains Station at Mandan, North Dakota: The range is divided into three equal parts. All the cattle are turned into one part in the spring and the grass on the other two parts is allowed to grow. When the grass is nearly all eaten off the first field, the cattle are transferred to the second and are allowed to stay there until early fall. Then they are placed on the third field. By that time, the grasses and other plants in the third field have matured their seed crop. The grazing cattle knock part of the seeds off and trample them into the soil, and so reseed the land. The order in which the three divisions of the range are grazed is changed each year so that the plants in each part have a chance to come back. This provision for protecting the life of the native plants, especially the bunch grasses, is apparently an important factor in maintaining the carrying capacity of the western ranges and at the same time getting the maximum pasturage from them.

CLARK: How many more head of cattle can you graze that way than with continuous grazing?

EXPERT: On land with a little better than average stand of good grasses, under the continuous system of grazing it has taken 7 acres per steer to avoid overgrazing. Under the deferred and rotation system grazing at the rate of 1 steer to five acres did not injure the pasture. So you see, forty per cent more animals may be carried on the same acreage of grass without causing any deterioration in the quantity or quality, if you use the rotation system. On the other hand, continuous grazing at the rate of 1 steer to 3 acres or 1 steer to 5 acres of pasture not only resulted in low gains, but injured the pasture. It decreased the more palatable grasses and increased the number of undesirable pasture plants, such as pasture sage which the cattle refuse to eat unless they are very hungry.

In eastern Colorado under the usual year-long system of grazing, the open range requires an average of 15 acres per head to carry cattle through the season. But the Colorado Agricultural Experiment Station has found that pastures of rye and Sudan grass combined will carry 1 mature animal on 2 acres for a period of five months. On sweet clover it takes only 1 acre per head for the same period.

CLARK: How did they grow that rye and Sudan grass?

EXPERT: They were grown in separate fields. Rye furnished the pasture during the early part of the year and Sudan grass the latter part. Those crops do not furnish year-long grazing like the native grasses.

The Forest Service of the United States Department of Agriculture has been able to make considerable improvement in the national forest range land with this deferred and rotation system of grazing. On a sheep range in the Hayden National Forest in Wyoming keeping the sheep off the range until the

grasses had matured seed and then allowing them to eat the herbage showed, after 2 years, an increase of about 100 per cent in the vegetation compared with an adjoining range moderately grazed the year around. There was also improvement in the percentage of the better grasses.

On the Jornada Range Reserve in southern New Mexico light grazing during the summers of 3 good growth years doubled the carrying capacity of the black grama type of range over that of the same type on the outside ranges. In all the work on these and other ranges in the national forests it has been found that the improvement is very slow the first few years, but faster after that. Considering all the national forest ranges, however, there has been an average increase of 25 per cent in the carrying capacity of the ranges under the control of the Forest Service.

CLARK: How about irrigated land? What kind of pastures are best for the irrigated lands?

EXPERT: Well, for Colorado irrigated lands, the Colorado Agricultural Experiment Station recommends a mixture of 9 pounds Brome grass, 9 pounds orchard grass, 4 pounds timothy, 5 pounds meadow fescue and 3 pounds yellow sweet clover. The use of alfalfa alone or in pasture mixtures is not generally recommended on account of the danger of bloat.

For irrigated lands in southern Idaho, the Idaho Agricultural Experiment Station recommends a mixture of 8 pounds of Kentucky bluegrass, 5 pounds of orchard grass, 5 pounds brome grass, 4 pounds of meadow fescue, 4 pounds of timothy and 2 pounds of white clover. A pasture seeded with that mixture had an average carrying capacity of 3 head per acre for the grazing season.

At the Huntley Experiment Farm, Huntley, Montana, a pasture mixture of 2 pounds brome grass, 5 pounds orchard grass, 3 pounds tall fescue, 3 pounds of perennial rye grass, 4 pounds Kentucky bluegrass, 2 pounds white clover, and 2 pounds alsike clover has an average carrying capacity of 1.75 cows per acre for 141 days. A mixture like that, except that it contained no brome grass or perennial rye grass, had a carrying capacity of 1.84 cows per acre for the same pasture period.

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UNITED STATES DEPARTMENT OF AGRICULTURE **Radio Service** OFFICE OF INFORMATION

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U. S. RADIO FARM SCHOOL  Wednesday, Jan. 11

( NOT FOR PUBLICATION )

Farm Economics Meeting No. 15.

SUBJECT: Warehousing, an Aid to Marketing.

ANNOUNCEMENT: Every Wednesday we have a meeting here of the farmers interested in the business end of farming --- and that takes in most of the farmers in this neighborhood. During the last few weeks we've been talking over different helps in marketing farm products. That Department of Agriculture man over there has been giving us some good hints --- Look there! -- That bunch of men have him talking again --- Come on, let's hear what they are saying.-------

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BROWN: It may help the bankers. I can see where it will give him protection he otherwise don't get. But what about us farmers? What good does storing our stuff in a Federal warehouse do us?

EXPERT: Oh, you get a good many advantages from it.

BROWN: What are they?

EXPERT: Well, in the first place, the warehouse receipt you get from a warehouseman licensed under the Federal Warehouse Act, is not a mere acknowledgement that he has received a certain amount of your grain or other product. The Federal warehouse receipt is a distinct contract between the warehouseman and yourself. It is a contract under which the warehouseman assumes definite obligations -------

BROWN: Well?

EXPERT: Another thing, in many states you can get a lower insurance rate on your products when they are stored in Federally licensed warehouses.

BROWN: Yes?

EXPERT: Not only that, but when your product is in a Federally licensed warehouse you can feel confident that it is there. It isn't only supposed to be there. It is checked from time to time by government examiners to make certain that it is actually in the warehouse. Then, too, under the law, provision is made for stating the grade of products on the warehouse receipt. The Department of Agriculture determines whether or not men who grade such products are competent to grade. Knowing the grade, you can turn to your daily paper, get the daily market prices, and tell exactly what your product ought to be worth in the market.

BROWN: Maybe that would help.

EXPERT: Sure. And remember, the warehouse receipt forms a lot better collateral for you if you must borrow. You farmers will find that bankers generally are disposed to look on Federal warehouse receipt with much more favor than any other form of warehouse receipt. With a receipt that is more acceptable to the bankers you not only have a wider money market in which to borrow, but you can often get better interest rates.

BROWN: Why do bankers like Federal warehouse receipts better than any other warehouse receipt?

EXPERT: For a number of good reasons. A warehouseman to become licensed by the Federal government must meet a certain standard of requirements. He must have a prescribed amount of net assets. He must have a good building. He must know how to care for his products. He must have accurate scales and must weigh accurately. He must show the identifying marks on identity-preserved products so that the farmer and banker may be sure they are getting the same products that were put in the warehouse. The warehouseman must also grade the products unless the depositors request him not to. He must show the weight and grade of the product on the receipt. He must also show whether the products are insured and must insure the farmer's product if requested in writing to do so. All that information is very valuable to the banker. It gives him an idea of the real market value of the products represented by the receipt, so he can make a fair loan to the farmer.

BROWN: Good!

EXPERT: But that is not the main thing. The warehouseman in order to be licensed must meet the Federal standards. He must be reliable. Before the license is given him, he is investigated. Those investigations eliminate undesirables. Many applications from warehousemen have denied. On top of that the warehouseman must furnish bond in a specified amount to the Government, for the protection of anyone who may suffer a loss due to improper conduct on the part of the warehouseman. But the big feature that appeals to the banker is that after the warehouseman gets his license he is subject to continuous supervision by the Government. Federal examiners check his warehouse at least four times a year to see that all products are in the house, and that he is complying with the law. Many warehouseman have received more than four inspections a year. If the Federal officials think there are suspicious circumstances, they may make four inspections in as many months. If things are not as they should be, the warehouseman may have his license revoked. It is that disinterested checking by Government men that appeals to the bankers and it ought to appeal to the farmer and everyone who handles such products in any way.

BROWN: Suppose a warehouseman represents himself as licensed when he is not? Suppose he issues a certificate made to look like a Federal warehouse receipt?

EXPERT: You needn't worry about that. If such a thing is reported to the Department of Agriculture, the Department will investigate at once. If the facts are found to be as represented, the matter will be referred to the

United States Attorney General at once for prosecution. If the warehouseman is found guilty he may have to pay a fine of $10,000 or be imprisoned for one year, or both, as the judge may see fit.

BROWN: How can you tell whether a warehouseman is licensed or not?

EXPERT: If you have any doubts, just mail a card addressed to the U.S. Department of Agriculture, Washington, D. C., and give the warehouseman' name and address. The Department will let you know whether or not he is really licensed under the Federal Warehouse Act. The Federal warehouse receipt is distinctive. The paper is light greenish blue color. Eagles with wings spread similar to the eagle design on one dollar bills are watermarked in the paper. Above each eagle appear the words "Issued Under Authority of the" and underneath, the words "U.S. Warehouse Act" also watermarked in the paper. The receipts have the license number printed in the upper left-hand corner. Printed across the top in bold type are the words "Licensed and Bonded under the United States Warehouse Act." The body of the receipt also refers to the warehouse Act and regulations under it. In addition, there are certain secret marks on the receipt for identification purposes. If you get a receipt and doubt it being genuine, you can send it by registered mail to the Department, where experts will be glad to determine whether it is genuine or counterfeit. So you see products stored in warehouse licensed under the Federal Warehouse Act are protected all along the line.

BROWN: What banks will loan on Federal warehouse receipts as collateral?

EXPERT: Why, practically all banks recognize the value of Federal warehouse receipts. Federal Reserve and Intermediate Credit banks and ordinary commercial banks in some sections prefer them. Ordinarily, if you present a Federal warehouse receipt as collateral, you should have no trouble securing a reasonable loan on it. If your own banker cannot handle the loan, he can easily arrange to take care of your needs through other banks.

BROWN: Do growers cooperative associations use Federal warehouse receipts as collateral?

EXPERT: A great many do. The associations have borrowed millions that way.

BROWN: And you say, individual farmers can use Federal warehouse receipts as collateral for loans?

EXPERT: By all means! Thousands of them are doing it.

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UNITED STATES DEPARTMENT OF AGRICULTURE

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U. S. RADIO FARM SCHOOL

Fri., Jan. 13/28

Livestock and Dairy Meeting No. 15.

SUBJECT: Animal Parasites

ANNOUNCEMENT: Our farm club, which meets here in the school house three times a week, is talking about livestock today; or rather, they are talking about livestock parasites. That man over there by the stove talking now is the livestock specialist from the Department of Agriculture. He has been trying to impress us with the importance of keeping down parasites --- Listen!

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EXPERT: Yes, you should avoid heavy stocking. Crowding animals is a good way to bring about heavy damages from parasites --

NEWTON: Just what do you call 'parasites'?

EXPERT: Well, you might define parasites generally as live organisms which live on or in other animals called hosts and get their nourishment more or less at the expense of the hosts. Parasites which live either permanently or temporarily on an animal are called external parasites ----

NEWTON: You mean such pests as ticks and lice and mites? Fleas, bedbugs and mosquitoes?

EXPERT: Exactly. Parasites which live in the body of the host animal are called internal parasites. Stomach worms of sheep, roundworms of hogs, liver flukes of sheep and cattle, and tapeworms are important examples of internal parasites.

NEWTON: First and last, they do a good bit of damage don't they?

EXPERT: They certainly do. A tremendous amount. Parasites, of course, vary in importance, depending on their bad effects upon the animals. Generally speaking, however, you can say that any parasite that gets its food from man or any of his animals is of economic importance. Of course, the harm parasites do depends on the number of them, their habits, the tissues and organs they affect, and the poisons they produce. The external parasites often produce a pronounced itching and irritation of the skin. That results in general unthriftiness of the irritated animal. Some parasites suck blood. Others may transmit other parasitic diseases.

NEWTON: How is that?

EXPERT: The Texas fever of southern cattle is an example. Texas fever is one of the serious parasitic diseases. It is transmitted by the bites of the common cattle tick. Now then, internal parasites hurt animals in a number of different ways. The gid bladderworm, for instance, occurs in the brain of sheep. It destroys the brain tissue by pressure and causes the death of the sheep. Liver flukes, which get in the liver and bile ducts of sheep and cattle, cause inflamation and destruction of the liver tissue and impair the working of the liver. Lungworms live in the bronchi. They often produce a fatal pneumonia or suffocation. Kidney worms of swine occur in the kidneys, liver, leaf fat, and muscles of the back. Occasionally, they even invade the hog's spinal canal and produce enough pressure on the spinal cord to cause paralysis of the hind quarters. Young ascarids in swine pass through the lungs and give rise to pneumonia which is often fatal.

But the direct damage produced by parasites does not tell the whole story. They also make animals more susceptible to infections by bacteria. The bites of the parasites make little wounds which give the disease-producing bacteria highways by which to reach the tissues. By lowering the resistance of the animals, parasites also give bacteria a better chance to multiply.

NEWTON: Parasites are harder on young stock than on old ----

EXPERT: Oh, yes. Young animals are more susceptible to parasitic infestations than mature animals. As you know, deaths from stomach worms in lambs are much more common than in old sheep. Gapesworms kill off a lot of young chicks, while older birds are immune. Worm eggs and infective larvae are more numerous and concentrated in crowded areas, too. That's why I suggested to you awhile ago, that you should avoid crowding the animals.

NEWTON: What else should we do to keep down trouble from parasites.

EXPERT: Well, careful selection of pastures and general sanitation are of major importance. If you want to avoid liver-flukes, for instance, you should never pasture your sheep and cattle on low, marshy land.

NEWTON: Why is that?

EXPERT: Why, simply because the snail which harbors the young stages of the liver-fluke is found only in wet or damp places. Dampness also favors the development of many other parasites.

NEWTON: Just how can you tell when an animal is infested with parasites.

EXPERT: There is no set of symptoms will cover all conditions produced by parasites.

NEWTON: Sure. I realize that. But I thought maybe you could tell us some of the symptoms.

EXPERT: Well, when an animal looks unthrifty and shows a tendency to rub or scratch various parts of its body, you may do well to suspect that the trouble is due to external parasites. Falling out of hair or wool, along with scratching or other evidence of irritation, is suggestive of mange.

NEWTON: Yes, but how about internal parasites. What are the symptoms of them?

EXPERT: Unthriftiness, gradual falling off in flesh, diarrhea or constipation, bloodlessness or anemia, the collection of fluid in the lower parts of the body, especially under the jaw, with a lack of fever accompanying these conditions, usually indicate infestation with internal parasites.

NEWTON: What kind of treatment would you give to get rid of them?

EXPERT: The treatment of diseases produced by parasites calls for skill in diagnosis. Each parasite is more or less susceptible to a specific drug.

NEWTON: What are some of the drugs? Tell us some of the treatments best for some of the chief parasites?

EXPERT: Well, the really effective drugs for the removal of worms are powerful poisons. They are intended to be administered in such amounts and in such a way that they will give the greatest efficiency in removing parasites, with the greatest safety to the patient.

NEWTON: That's not very definite.

EXPERT: No, it isn't. What I want you to understand is that treatment calls for skill and training.

NEWTON: You mean it is best to call the doctor?

EXPERT: Yes. Treatment for parasites should be administered either by competent veterinarians or under their direction.

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★ JAN 31 1928 ★
U. S. Department of Agriculture

U. S. RADIO FARM SCHOOL Mon. Jan. 16, 1928.

(NOT FOR PUBLICATION)

Crops and Soils Meeting No. 16.

SUBJECT: Measuring and Marketing Farm Timber

ANNOUNCEMENT: We are now holding the regular Monday meeting of our farm club. If you just take a seat down there where you can hear, you may pick up some good suggestions. Some that you can use on your own farm. That's my neighbor, Bud Freeman, talking there now. The man he is talking to is a timber expert from the United States Department of Agriculture ------- Listen -------

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FREEMAN: Yes, he practically gave away his timber. He came to find out it was worth five times what he got for it.

EXPERT: I'm not surprised. I've known many woodland owners to do that. They often sell their timber without knowing enough of its market value to protect their interests. But you men can avoid such losses.

FREEMAN: How?

EXPERT: Well, in the first place you should know how much timber you have. You can estimate your standing timber as closely as you can any other crop; with a little care and practice.

FREEMAN: How would you go about it?

EXPERT: You can find out how much timber you have by measuring the trees and estimating the amount of lumber in them with log scales or tree scales. The log scale stock tells how many board feet of lumber can be cut from logs of various sizes and lengths. You can make estimates for sawtimber, crossties, cordwood or any other form of wood -----

FREEMAN: But suppose you don't know how to measure logs -- or how to use a scale stick?

EXPERT: If you don't know, learn. It is not hard to learn.

FREEMAN: They tell me some of the rules use for estimating lumber give the buyers all the best of it.

EXPERT: That's often true of the Doyle rule. Although it is in common use, it does not give accurate results for logs smaller than about 28 inches in diameter. It is very low in scale for logs up to some 12 to 16 inches. By the Doyle rule

/a 10-inch log 16 feet long scales 36 feet, whereas by close sawing it will yield about 64 feet. The Doyle-Scribner rule is low for big logs as well as little ones.

FREEMAN: What is the best rule to use?

EXPERT: Well, the International log rule gives close to what can actually be sawed out by using good methods. It is a good rule and is gradually coming into general use. Careless sawing will give less lumber than the log scale by that rule. You who sell small logs will benefit when the International rule or some other equally accurate is being used generally. I'd recommend that, so far as possible, you measure and sell your logs by that rule.

FREEMAN: Knowing how much timber you've got won't do much good, unless you know what's its worth; and can find somebody to pay what it is worth.

EXPERT: You are right there, Freeman.

FREEMAN: Well, how is a farmer going to find out the sale value of his timber?

EXPERT: Of course, you should take advantage of the experience of your neighbors, who may have recently sold timber or informed themselves about good markets and current prices. Ask them. Or get advice about markets and timber prices from your State forester, or your county agricultural agent, or any other available public official or personal agency likely to know about such things. In fact, unless you have had a good bit of experience along that line, it might pay you to hire some reliable man to make a special study of market prices of logs and lumber. You might save from 10 to 40 times the cost of the examination that way.

Another thing for you to do is to get into touch, through correspondence, with outside buyers. Wake up competition among as many buyers as possible. A live effort along that line will often bring an open market for standing timber. You can determine the value by referring to current market prices and figuring your total cost of putting your timber on the market.

Did I ever tell you about the experience of that woodland owner in Maryland? He was offered $1,500 for a tract of timber. He thought that was a fair price, but he wasn't real sure. Before he made the sale, he asked the advice of the State Forester as to the amount and value of his timber. The State forester examined the tract, estimated the market value of the timber, and gave that woodland owner a list of timber operators who might be prospective buyers. The timber was then publicly advertised, and the man who had made the $1,500 offer before raised his bid to $4,500. Finally the sale was made to another person for about $5,500.

FREEMAN: All that took time, didn't it? It took something to advertise ---

EXPERT: Only three months passed between the date of the first offer of $1,500 and the final sale for $5,500. And not only was the original offer increased nearly 270 per cent, but the tract was left in good condition.

FREEMAN: What do you mean "good condition"?

EXPERT: Well, the tract was left in good condition by having the trees to be cut selected and marked by the State forester with a view to leaving the young growing timber on the ground and enough seed trees to restock the open places. The contract also called for cutting the stumps low and use of small diameters in the tops, the lopping of tops for cordwood, and the scattering of the remaining brush.

FREEMAN: The trouble with me is, I don't know whether it would pay me better to sell or to use my timber right on the farm.

EXPERT: In some sections, it unquestionably pays a farmer better at all times to sell his standing timber, especially the more valuable kinds. In the central hardwood region, farmers sell their select yellow-poplar trees profitably. With the money they buy and haul back to the farm for distances of from 4 to 8 miles southern-pine siding for their houses and barns.

FREEMAN: Yes, and I've seen farmers saw choice white oak up for fence posts, when it was the best quality for veneer or furniture stock.---- What's the best age to cut trees?

EXPERT: Well, the age at which trees should be cut to get the highest net money returns a year is different for different species. Cottonwood, ash, and yellow poplar grow to commercial size at much earlier ages than white oak or black walnut.

FREEMAN: A buyer was telling me the other day that I should sell right away. He said my timber is "going back" and dying on account of rot and insects.

EXPERT: He may want to buy as cheaply as possible. It is probably not dying or decaying as fast as he claims. Unless it is overmature it is increasing in size and value every year. Cutting timber before it matures often means a real sacrifice of money. Winter is a good time to give attention to your woodland; to estimate, cut, and market your timber. It is easier to haul logs on snow than over ordinary roads, and the logs are less liable to deteriorate fast than at any other time of the year.

There is one thing I want all you men here to get. There is unquestionably a clear and definite need for cooperation among owners in selling timber. The average farmer by himself acts at a big disadvantage.

Several farmers acting together could market their black-walnut, logs, basswood, hickory or oak bolts, piling or other products direct to the wholesaler, manufacturing plant, or user at much bigger profits than those they get from individual sales. Think it over.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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U. S. RADIO FARM SCHOOL Wed., Jan. 18, 1928.

(NOT FOR PUBLICATION)

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U. S. Department of Agriculture

Farm Economics Meeting No. 16.

SUBJECT: Packages for Marketing.

ANNOUNCEMENT: Our farm club meets here in the school-house every Wednesday to talk over the business end of farming. For the past few meetings, we've been discussing marketing. That Department of Agriculture specialist over there has been telling us how we can do better marketing ----- See there, they've got him talking again -- Let's get in on this ------

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EXPERT: Yes, eight million dollars a year --- Railroad loss and damage claims involving fruits and vegetables now amount to about eight million dollars a year. That's a heavy tax on the fruit and vegetable business -----

BROWN: What are the causes of all that damage?

EXPERT: There are many causes. Among the big causes are rough handling, failure to store shipments properly in cars, delay in transit, lack of proper refrigeration, and frail containers. The situation calls for cooperation. Growers, shippers, basket makers, and carriers should work together to reduce the damage to the lowest possible point.

BROWN: What can farmers do about it? For instance, take baskets. If the baskets are not strong enough, it is not our fault. We don't make the baskets.

EXPERT: You could help all right. You farmers and shippers who buy baskets should quit buying only on the basis of price. You should require the manufacturer to furnish a definite statement of the specifications on which his baskets are made. A manufacturer who is making high quality baskets will undoubtedly be glad to furnish such specifications -----

BROWN: What good will that do?

EXPERT: Why, by comparing the specifications of the different manufacturers, you can find out which basket is really the cheapest for you to buy. You know, there are many baskets on the market of such poor quality that they should never be used in shipping fruits and vegetables. A container for the shipment of fruits and vegetables, properly loaded and under normal traffic conditions, should be strong enough to carry the fruits or vegetables intact from the grower to the wholesaler and from the wholesaler to the retailer. You buyers should insist that your baskets be equal to the job they have to do.

BROWN: Those kind of baskets would cost more than lighter ones.

EXPERT: Yes, but better pay more for good quality than to pay less and take the risk of broken packages and loss of produce.

BROWN: It seems to me there has always been too much "con" in containers. I used to have trouble getting full measure berry boxes. And when I did, I found I had to compete on the market with short measure boxes. The tricky fellows with the short measure boxes could sell their short quarts for just as much as we could our long ones. The quart berry boxes sometimes held a quart, but more often held 15/16 of a quart, or 3/4 quart, or 2/3 quart. There were plenty of short sizes to choose from. It was easy to get boxes so short that only 22 quarts of berries were needed to fill a crate. Fact is, you could even buy 24 quart crates that held only 18 quarts of berries.

EXPERT: Yes, I know. The case was equally bad with the Climax basket in which Eastern grapes are commonly marketed. There were thirty-five sizes of Climax baskets known to have been made. One manufacturer in New York State had in his factory 14 different size forms for 5-pound Climax baskets. Four of them were used in one county in New York. That was a pretty mess for a grape grower to choose from. And it was just as bad for the manufacturers. Berry boxes are being made all fall and winter; Climax baskets are made during the spring and summer. With so many sizes for the grower to choose from, the manufacturer could only guess what sizes he would choose. If he guessed wrong, the boxes or baskets were left on his hands. Sometimes he tried holding off until he could tell definitely and then had to work day and night to keep up. The result was that growers had trouble getting containers as they needed them. But all that was before November 1917, when the U. S. standard container Act went into effect. That law took a good bit of the "con" out of containers.

BROWN: What does it provide?

EXPERT: Well, it established the 2, 4 and 12 quart sizes as the standard Climax baskets and prescribed dimensions for them. It established the ½ pint, pint, and quart, dry measure as the standard berry boxes. It also provides that all other baskets used for fruits and vegetables shall be made in multiples of the dry quart.

BROWN: It seems to me there are still a lot of unnecessary sizes of baskets for fruits and vegetables. Look at the number of hampers and splint or market baskets!

EXPERT: Yes, that's true. They would be as many sizes of hampers as there is any need for if they were standardized on the basis of the peck or 1/4 bushel. That would give you the 1/4, 1/2, 3/4, 1, 1-1/4 and 1-1/2 bushel sizes. It would do away with the 10 and 20 quart sizes, which are unnecessary, and the 14-quart, which can easily be mistaken for the 1/2 bushel, and the 28 quart, which can easily be mistaken for the bushel size.

In the case of the splint or market baskets, it is hard to say just how many sizes are being made. Only a few of these sizes are really needed. Standard baskets of 4, 8, 12, 16, and 24 quarts should be enough. The manu-

facturers of the round stave baskets have themselves succeeded in doing away with most of the unnecessary sizes of round stave baskets. For shipping, they now make them only in the 1/2 bushel and bushel sizes. Some 1/2 peck and peck baskets are made for roadside sales and some 1-1/2 bushel baskets for farm purposes. The new baskets developed from the round stave type, known as the straight side or tub baskets, are made almost altogether in the bushel size, although some manufacturers are planning to put out a 1/2 bushel size.

BROWN: I don't see why the manufacturers of all kinds of fruit and vegetable baskets can't cut down the number of sizes.

EXPERT: Well, hamper manufacturers, for instance, claim that their customers demand odd sizes and they feel they must supply the demand. They can't reduce the sizes unless their customers are content to accept the few necessary sizes. Fewer sizes simplify things for the basket-makers. With fewer sizes, they can concentrate on those few and cut down their costs.

BROWN: Well, there probably should be fewer size baskets --- but that's not what we started out talking about. We were talking about getting stronger and better baskets for shipping fruits and vegetables ------

EXPERT: Exactly. But the many sizes complicate the problem of damage in transit.

BROWN: How do you make that out?

EXPERT: Why, with the elimination of many sizes by standardization the container problem will be narrowed to a few sizes. It will be easier to work out standard strength specifications, and to devise approved methods of storing and bracing the baskets so as to reduce breakage in transit. Standard containers not only relieve you of that unfair competition you mentioned awhile ago due to your competitors using short sizes, but standardization will give you stouter and better baskets --- it will help save you your part of that eight billion dollars loss.

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JAN

U.S. RADIO FARM SCHOOL Fri. Jan. 20, 1928.

Livestock and Dairy Meeting No. 16.

SUBJECT: Dairy Herd Management.

(NOT FOR PUBLICATION)

ANNOUNCEMENT: Are all our farm club members here? We are ready to begin our regular Friday meeting. We asked the dairy specialist from the United States Department of Agriculture to come over and talk with us---- There he is now--- And there the members are popping questions at him already--- That's Henry Briley talking to him now --- Sh-h-hush!

*******

BRILEY: Well, what you say about purebred dairy cattle producing more, on the average, than grades may be all right; but the trouble is purebreds cost more, too.

EXPERT: Of course, Briley, they do. Since you are a beginner in the dairy business, I would advise you to start with a few grade cows and a purebred bull. Then, as you get hold of the money, you can buy a purebred cow from time to time. By keeping that up for a few years, you will soon have a good sized herd of high-producing animals.

BRILEY: What is the best breed to buy?

EXPERT: Well, the selection of the individual cow in the herd is a good deal more important than the selection of the breed. Good cows and poor cows are found in all breeds. There are several dairy breeds in the United States. All of them give satisfaction.

BRILEY: Is it all right to cross breeds?

EXPERT: No. You shouldn't cross them. That mixes up their hereditary characteristics so that it is very uncertain as to what they will transmit.

BRILEY: And you think I should start with a purebred sire?

EXPERT: Yes, and if possible, with a proved sire. The better the bull the better your future herd will be. You should cut out all the guess work you can. You should keep records, if you expect to realize the biggest profits.

BRILEY: I'm not much of a book-keeper.

EXPERT: Well, your system of keeping records doesn't have to be elaborate. It should be detailed enough to give accurate information on the production of the individual cows, the quantity of feed they eat, and the breeding dates. You should also have a plan of identifying and registering your purebreds.

BRILEY: How would you go about getting accurate information on production?

EXPERT: Why, production records are obtained by weighing each cow's milk each day, by testing her milk at regular intervals for percentage of butterfat, and by calculating the quantity of butterfat produced.

BRILEY: Why is that so important?

EXPERT: Well, the primary purpose of production records is to enable you to cull out your low-producing cows. The daily milk records also enable you to feed your cows according to their needs, as shown by their production. Then, too, they help you detect any sickness or abnormal condition, which is usually evidenced by a falling off in the quantity of milk produced.

BRILEY: Weighing the milk and keeping records that way takes a lot of equipment, doesn't it?

EXPERT: No. The only equipment you need to keep milk-production records are a spring balance scale and a supply of milk-record sheets. You can buy a good milk scale for about $5.00 and a year's supply of milk sheets cost very little. You can determine the average percentage of butterfat by testing each cow's milk for one day each month by means of the Babcock test. You can estimate the monthly production of butterfat by multiplying the amount of milk produced each month by the percentage of butterfat for that month.

BRILEY: Could I do that testing myself?

EXPERT: Oh, yes. Or you might join a dairy-herd-improvement association and have the work done by the association tester. The tester keeps both detailed production records and detailed feed records. Thousands of farmers have found that a cheap way for keeping reliable records.

BRILEY: Where could I find out about that?

EXPERT: Write to your State agricultural college. They can give you information about the organization and operation of dairy-herd-improvement associations and about the rules and requirements for official testing. You know, the national dairy cattle breed associations cooperate with the State agricultural colleges in maintaining systems of official testing for purebred dairy cows.

BRILEY: Another thing--- about those breeding records, you mentioned

----What should those records include?

EXPERT: On the day the cow is bred, you should record the date of the breeding, the name of the bull to which she is bred, and the probable date of calving.

BRILEY: Cows usually calve about 283 days after the breeding date, don't they?

EXPERT: Yes. If you do not have a gestation table handy, you can figure the calving date by counting back three months from the breeding date and then adding ten days. Say a cow is bred May 15. Counting back three months you get February 15. Then add ten days, and you have February 25, which is about the date in the next year when the cow is due to freshen.

Of course, you need some method of identification. Give each cow in the herd a number. When a new calf is born or a new cow bought give each a number. Then attach to the animal's ear a stamped metal tag or disc bearing that number. The stamped metal tags are often attached to a leather strap placed around the animal's neck. Some breeders tattoo the numbers and letters in the ear; and that practice is required by some breed associations for identification in connection with official testing. Registration papers for all purebred animals should be on hand. The national dairy cattle breed associations will furnish you directions and advice for registering your purebred cattle.

BRILEY: What is the best time of the year to have cows freshen?

EXPERT: As a rule cows freshening in the fall months produce the most milk and butterfat and return the most income over cost of feed. Fall calves are easier to raise and less subject to disease, too. But, of course, if you sell whole milk for city retail trade, you should have your cows freshen at all seasons of the year.

BRILEY: How do you feed your fresh cows?

EXPERT: Well, at that time of the year when the weather is cold immediately after calving, it is best to give the cow warm water. Follow that by a warm bran mash. Soon after, you can give her some hay, but don't force her to eat it. Keep her inside and away from drafts during cold weather. Cover her with a blanket so she will not get chilled.

BRILEY: How would you feed her after she is back in the herd?

EXPERT: If the cow's condition is normal, you can take the calf away from her after two days and put the cow in the milking herd. But at first, feed grain sparingly. You can give her all the roughage she will eat. As

the milk flow increases, you can increase the amount of grain. Too much grain at such a time is apt to cause digestive disturbances.

BRILEY: How long should it take to get a cow back on full feed?

EXPERT: You should take three weeks to get a high-producing cow on full feed. However, medium and low producers may have their full allowance somewhat earlier.---------

And remember, Briley, what I told you. Be sure and keep those feed and production records. They take the guess work out of dairying.

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U. S. RADIO FARM SCHOOL Wed., Jan. 25/28

NOT FOR PUBLICATION

Farm Economics Meeting No. 17.

SUBJECT: Shipping to Market.

ANNOUNCEMENT: This is our regular Wednesday meeting of our farm club. You know, every Wednesday we get together and talk over the business end of farming. Marketing is the big thing our members are interested in these days.--Listen to that bunch there now.--That's the Department of Agriculture man, he is up on the latest ideas in marketing and there's old man Gibbs, talking now --- he's one of our old timers around here ----

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GIBBS: ---- It wasn't like this in the old days.

EXPERT: No, I guess not. You didn't have market reports and radio in those days, either.

GIBBS: No. When I used to want to ship my stuff to market, I loaded them in a wagon, hitched up the team, drove to town and sold them to the storekeepers and others myself. Talk about "distributing machinery", I was it.

EXPERT: That was simple enough.

GIBBS: You're right. No middle men -- no commissions to pay -- and no freight claims to file. The only competition I had was from my neighbors who drove to the same town. I decided the proper time to market my produce, by talking with the neighbors, or with the buyers themselves after I got to market.

EXPERT: Shipping to market is not so simple as that nowdays. It involves a long chain of services and middle men. There are a lot of links in that chain ----

GIBBS: Yes, and a good many kinks, too -----

EXPERT: Yes. The system is something like a chain conveyor belt with somebody standing at all the turns ready to keep it moving but taking toll for their help.

If you are in a cooperative marketing association the marketing chain is controlled by that association. The association generally has its own representatives stationed at many of the turns where there is likely to

be trouble. At other turns, they use established services. All those services cost money.

GIBBS: How about the grower that doesn't belong to a cooperative?

EXPERT: His chain may start with the country buyer who picks up his product at the farm and pays cash for it. That buyer in turn probably sells to a local shipping firm of dealers, brokers or carlot assemblers. The next link in the chain is the railroad. Then when the produce reaches the city, it is taken in hand by the carlot receiver, who is equipped to handle big lots and who pays cash for what he handles. Or it may go directly to the wholesaler who handles it on commission. Then the jobber takes hold and puts out the stuff in small lots; perhaps carting them to the retail stores and extending credit.

GIBBS: Why are there any jobbers, anyway?

EXPERT: Well, the retail store keeper cannot handle big lots. He cannot bother to go to the railroad miles away and get the small quantities he needs. Of course, the jobber charges for these services. Then the retailer gets the final and largest slice for peddling out the produce a few pounds at a time, maybe on credit.

GIBBS: It's certainly a long chain --- Can't we cut out a few links?

EXPERT: When the farmer up country tries to shorten the line very much, he generally finds himself green at a complicated business. He runs against troubles and costs he never dreamed of and uses up time and labor he needs at home.

GIBBS: In the "good old days" I got what the consumer paid for the produce. At most, I only had to divide with the local store keeper. Nowdays, I get only a very small part of the dollar the consumer pays for my stuff. It looks like there is waste somewhere.

EXPERT: Yes, but that information about prices and conditions you used to get by personal contact with the buyers, you now have to get somewhere else.

GIBBS: Sure. Right now I'm shipping hundreds of miles to a market where my produce competes with stuff of the same kind from all over the country. I have to have accurate, prompt information about market conditions.

EXPERT: That's why the Department of Agriculture established its telegraphic market news service. That service was first tried on fruits and vegetables. Since 1915 it has been extended to cover practically all the

major farm products. Now you growers throughout the country can get in the form of mimeographed reports, through the newspapers, by telegraph, and by radio, daily, in fact, almost hourly information covering the prices at which your products are selling in the principal markets, the supply of those products on the market ready for sale, and the quantity moving toward the market. For instance, a New York producer of apples knows the number of apples that are being shipped from the far away state of Washington. He also knows the quantity of apples from all of the competing States which are available for sale each day in New York City and in other important markets. The same thing is true for producers of other fruits and vegetables or livestock and other farm products.

**GIBBS:** Yes, that information is a big help. But even with all that, we still have our troubles when we want to ship to market. That may tell you where to ship and the type of marketing chain it is best to use, but those different marketing chains, as you call them, get tangled up and kinked. There are still too many links and kinks.

**EXPERT:** That's the reason farmers in various sections of the country within the past year have insisted on the organization of some of those links into so-called clearing houses so they can get more money for their products.

**GIBBS:** What do the clearing houses do?

**EXPERT:** They have made it possible to overcome some of the difficulties that caused kinks in the marketing chain by a mutual exchange of information, by the elimination or the minimizing of certain bad competitive features and by a more intelligent use of all the information made available through various agencies.

Of course, you understand, there is a lot yet to be done to simplify the process of shipping to market.

**GIBBS:** There certainly is. Each of those links in the chain may perform certain definite services, but, as I understand it, they often get in each others way.

**EXPERT:** Exactly. However, the growth of the cooperative idea in marketing; the intelligent use of the many services by the United States Department of Agriculture; the aid extended by States and private agencies, interested in the farmer's welfare; and his own efforts, guided by the hard knocks of experience, will gradually better conditions.

**GIBBS:** In the meantime, "shipping to market" is an infernal contraption!

**EXPERT:** Yes, one that must be studied------

**GIBBS:** And browbeaten and wheedled ----

**EXPERT:** Yes, and finally understood and conquered. Gradually there must be fewer kinks or turns. Eventually the tolls exacted for each of the services must be brought within reasonable limits.

**GIBBS:** A-men, brother! A-men!

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U.S. RADIO FARM SCHOOL Mon. Jan.23

Crop and Soils Meeting No. 17.

SUBJECT: Seed Testing (NOT FOR PUBLICATION)

ANNOUNCEMENT: Yes, this is the place. It is the school-house, but our farm club meets here. Every Monday we talk over crop or soil questions. We just swap information, you know. That Department of Agriculture man down there gives us the expert stuff--- Listen there,--- That's Fred Holloway talking to him now---

**********

HOLLOWAY: -- Why, farming is a gamble from start to finish. There is nothing certain about it except the taxes.

EXPERT: There are a good many uncertain factors about it. That's where agricultural advancement comes. It is taking some of the uncertaintly out of farming.

HOLLOWAY: Can you do that? For instance, there's the weather; the farmer can't control that.

EXPERT: No, the natural conditions of climate have to be taken as they come. Of course, you can modify their effect by culivation, fertilization, crop rotation, drainage, and irrigation---

HOLLOWAY: You may improve conditions that way, but you can't control them.

EXPERT: Well, there's certainly one factor you can control.

HOLLOWAY: What's that?

EXPERT: Why, you can control the quality of the seed you plant.

HOLLOWAY: How so?

EXPERT: If you use seed that has been carefully tested and found to be of good quality, you know that under favorable conditions you will get a good stand in the field. It is poor economy to invest your money and work on a crop and overlook the possibility of failure on account of poor seed.

HOLLOWAY: Oh, I use good seed corn. I know about the judging of seed corn and testing it----

EXPERT: Corn wasn't what I had in mind. I was speaking about the seeds of grasses, clovers, and other forage plant seeds. Those seeds that cannot be judged as to quality by inspection have had too little attention. You know, a large part of the forage plant seed sown on farms in this country is not produced on the farm where it is used. Forage plant seed is gathered together from all parts of the world by wholesale seedsmen. The wholesale seedsmen reclean, blend, and grade the forage plant seed to suit the demand at the time. They distribute it to the localities where it is used.

HOLLOWAY: I must say things are better along that line, these days. Why, a few years back, I bought some seed that was so poor that it wouldn't even produce a stand in the field.

EXPERT: Yes, probably that was before there were state laws regulating the sale of seeds, and before seed testing had been given serious attention in the United States. Low grade clover and alfalfa seed were imported from Europe and sold to farmers in this country. But as those conditions became better known, the Agricultural Experiment Stations and the United States Department of Agriculture began to test seeds for farmers. They began to give the farmers information as to the quality of the seeds.

HOLLOWAY: What kind of information?

EXPERT: Details as to the proportion of the seed examined which could be expected to grow, how much dirt and chaff were in the seed, whether or not the seed was adulterated with inferior kinds that were much the same in looks, how many weed seeds were present, especially those that were known to be particularly troublesome.

HOLLOWAY: I guess few farmers will buy seed if they know that only a small proportion of it will grow, or if they know it is adulterated, or that it contains seed that will probably be troublesome. I know I wouldn't.

EXPERT: I hope not. But the farmer who buys clover or alfalfa or timothy or orchard-grass seed once a year, can't judge the quality of the seed for himself. That is the reason, seed testing was started. As more attention was paid to the quality of seeds, and as farmers got better acquainted with conditions of the seed trade, there was a demand for laws to regulate the quality of the seeds which could be sold.

HOLLOWAY: How many States have seed laws?

EXPERT: Forty-six states now have laws of that sort. You farmers don't have to have each lot of seed you buy tested, nowdays. The labeling requirements of State seed laws have taken the place of most of that testing.

HOLLOWAY: But in buying seed we should be sure they are labeled.

EXPERT: By all means! It is very important that seed buyers see to it that all the seeds they buy are fully labeled.

HOLLOWAY: Suppose he is a bit uncertain about the quality of some seed, what can he do about it?

EXPERT: You should submit samples of the seed to your State Seed Testing Laboratory to be tested.

HOLLOWAY: The Federal Seed law keeps out the poor seed from abroad doesn't it.

EXPERT: Yes, the Federal Seed Act protects you against the importation of poor quality seed and the labeling requirements of the State laws give you a statement of quality.

HOLLOWAY: Is there any way to test seed at home?

EXPERT: Why, certainly. Many seeds are tested that way now. The 4-H and other clubs do a good bit of testing. Seed tests that are accurate enough to answer all practical purposes can be made by a beginner with a little practice.

HOLLOWAY: Just where can I get instructions as to how to make seed tests?

EXPERT: Write to the United States Department of Agriculture. Ask them to send you Farmers' Bulletin No. 428, on "Testing Farm Seeds in the Home and in the Rural School."

HOLLOWAY: "Farmers' Bulletin 4-2-8", I'll remember that.

EXPERT: Do that. You will soon become expert enough at seed testing to avoid important errors.

HOLLOWAY: How about apparatus for making the tests? What do you have to have to do it?

EXPERT: All you need in making practical seed tests is a balance to weigh a few seeds from the sample, a magnifier to use in separating the pure seed from impurities, and a germinator.

HOLLOWAY: What do you have to have to make a germinator?

EXPERT: Oh, you can make a simple germinator with a couple of plates and a piece of cloth or a piece of blotting paper.

HOLLOWAY: Well, a balance sensitive enough to weigh a few seeds will cost a good bit, won't it?

EXPERT: Any boy or girl at all familiar with the use of a few common tools can make a balance that will do the work. That Bulletin 428 shows how to make it and the germinator and explains how to distinguish the good seed from the bad.

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U.S. Department of Agriculture

U. S. RADIO FARM SCHOOL Fri. Jan. 27, 1928

(NOT FOR PUBLICATION)

Livestock and Dairy Meeting No. 17.

SUBJECT: Selecting Breeds.

ANNOUNCEMENT: Come on in --- Sit down --- Our club meeting has just begun. As usual on Fridays, the members are talking livestock. If you are interested, take a seat and listen in with us. That man standing up there is the Department of Agriculture expert. The man talking to him is Tom Black ------ Let's hear what they are saying ----------

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BLACK: I want your expert opinion. Now, just what do you think are the best breeds of livestock? Tell us --- Suppose you start in on hogs --- What is the best breed of hogs ------

EXPERT: Hold up, there, Mr. Black. I suppose you know there are 14 breeds of hogs in the United States. There are 11 breeds of sheep, and 7 principal breeds of goats. There are 10 principal breeds of beef cattle, and 6 breeds of dairy cattle. There are 9 important breeds of light horses and 6 of draft horses. And as for chickens, there are 42 different breeds, to say nothing of the varieties. Why, there are 9 recognized varieties of Leghorns alone.

BLACK: Sure--but which are the best?

EXPERT: Well, we could spend hours discussing the advantages and disadvantages of each breed. Select the one you like the best. You pay your money and you take your choice.

BLACK: I just wanted your opinion -- I've raised several kind myself. I'm thinking of raising another breed of hogs, and I'm a little uncertain which it will be.

EXPERT: Why don't you stick to one breed. A farmer will make much better progress with a single breed of any kind of livestock than by scattering his efforts. That also applies to the grading up of livestock by the use of purebred sires. In selecting a sire, get one of the breed you prefer and which offers you the biggest chance for success in your locality. Remember that the sire you select determines the breed characteristics of the entire herd or flock a few years from now.

BLACK: You mean if I stick to the kind of sire that I start with?

EXPERT: Of course. One of the most unwise things to do in animal breeding is

to keep changing from one breed to another. That will give you a mixed menagerie of farm livestock. However, if you are running a farm, and not a zoo, I'd say stick to one breed.

BLACK: Well, I've been hearing a good bit about purebred livestock. All I hear at the meeting of our club here and most that I read in the farm papers is about purebred livestock.

EXPERT: Well, success in breeding purebred livestock depends largely on your ability to judge stock, and your knowledge of breeding principles, and the pedigrees of breeding stock available for use. Yes, Mr. Black, there is no question but that standards and pure breeding are exacting. Purebred livestock breeding takes first-class business ability in advertising and selling surplus stock.

BLACK: Yes, I realize that. Of course, I think I can do it, all right; but it takes a lot of money to change from common stock to purebreds, doesn't it?

EXPERT: Well, instead of making a big investment to start with, if I were you, I'd make a small beginning and build on it gradually. That's always my advice to inexperienced breeders.

In selecting breeds and types of livestock, or in making a gradual change from common, mixed stock to a standard recognized breed, there are several practical points to keep in mind.

BLACK: What are they?

EXPERT: The first thing you want to remember is that animals are individuals. Though animals of the same breed have the same general characteristics of color, form, and other points of that kind, no two animals are alike. Variations within the breed permit you to show your skill in selecting your breeding stock. There are good animals and poor animals and medium quality animals in all breeds. If you select wisely, in time you will get near the goal or ideal type of animal you have in mind. What you need to do is to decide what sort of animal you want, and do your selecting accordingly.

BLACK: I expect to select breeds that are different from those raised around my neighborhood. Most of the farmers in our section seem to favor the same kind of stock, but mine are going to be different.

EXPERT: Just a minute, Mr. Black. Did you ever stop to figure the advantages in standardization?

BLACK: What do you mean 'standardization'?

EXPERT: You say that most of the farmers in your section raise the same breeds and varieties of livestock. There are a lot of advantages in a community doing that very thing. In some cases, those advantages are more important than your own personal preference as to breeds.

BLACK: How so? What are the advantages?

EXPERT: Well when those farmers around in your own community raise the same breed or variety of stock that you do, it gives you a wider selection of sires and other breeding stock.

BLACK: Yes, there's something in that.

EXPERT: Not only that, but you are in contact with breeders having similar interests. That generally helps. Then, too, the fact that the whole community is raising the same breeds of various kinds of stock has advertising value to the community.

BLACK: I see what you mean. Another thing, I guess it helps when it comes time to ship to market. Sometimes you can ship cheaper, together.

EXPERT: Yes, there are a large number of market advantages when large numbers of animals are raised in a locality. I want you to think over those advantages, before you decide to raise a different breed, just for the sake of being different.

And whatever breeds you select, remember that breeds and types of livestock are the result of breeding for a special purpose. You have plenty of breeds to judge from. When you get all the facts, you should have no trouble in picking the one that best suits your needs and your personal preference.

BLACK: Well, one man says his breed is best and another claims his is. Often both have good arguments to back them up. That thing of getting the facts and all the facts is not so easy as it sounds.

EXPERT: The Department of Agriculture considers that all standard breeds of livestock have their merits. It is impartial, it is not trying to sell you any one kind or breed of stock. It is ready to send you bulletins with descriptions and origins of the principal breeds of all kinds of animals. You can go over those bulletins and choose, or get together with your neighbors and choose the kind of livestock you wish to raise.

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U. S. RADIO FARM SCHOOL                                        Mon. Jan. 30/28

NOT FOR PUBLICATION

Crops and Soils Meeting No. 18 (a)

SUBJECT: The Control of White Pine Blister Rust.

ANNOUNCEMENT: Yes, this is the regular Monday meeting of our farm club. You know, our farm club meets here in the school-house three times a week. That expert from the Department of Agriculture is one of our members. He gives us a lot of good information --- Yes, that's the one I mean --- the man up there by the desk, with that bunch of men crowded around him --- Move up closer and you can hear what they are saying -------

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EXPERT: Certainly! --If the white pine blister rust is not controlled it will practically wipe out all the five-needled pine forests in the United States. In Europe, the blister rust has destroyed so many trees, that the commercial growing of white pine has been practically abandoned ---

SMITH: Gets the young trees mostly, don't it?

EXPERT: --- Young and old -- The white pine blister rust attacks pines of all sizes. The disease girdles the branches and trunks and ultimately kills the trees. As you suggest, the greatest damage in this country so far has been in young white pine growth up to thirty years old. Young trees are killed quickly. The old trees are first attacked on the twigs and branches. They die more slowly.

SMITH: --- Well, where is all this blister rust? Is it very widespread?

EXPERT: --- It is so widespread that there's no chance of eliminating it altogether. The best we can do is to bring it under control and check its spread. If we don't do that promptly, there will be tremendous losses.

SMITH: Why are these pines so valuable?

EXPERT: The white and sugar pines are our most useful and valuable softwood timber trees. White pine was practically the only lumber used in the United States up to fifty years ago, and we still have enough white pine timber left standing to be worth one and one-half times the total cost of the Panama Canal. The wood is very durable and has hundreds of uses in everyday life, from match sticks to building material. No other forest tree is so profitable for planting or growing systematically for a timber crop.

SMITH: Where did this disease come from and where is it now?

EXPERT: It was brought here from Europe 30 years ago and in the East, the blister rust is now generally established in the New England and New York. Areas of general infection also exist in Wisconsin and Minnesota, where the blister rust is widespread on currant and gooseberry bushes and white pine. Infections on currants and gooseberries have been found in 7 counties in New Jersey, 18 counties in Michigan, and throughout Pennsylvania. In the Pacific Northwest, the blister rust has been found widespread on currants and gooseberries and is also infecting the white pine. Infections on currants and gooseberries have been found in northwest Oregon, western and northern Washington, and at one place in the Panhandle region of northern Idaho -----

SMITH: -- Hold on there! -- I thought you said it was the white pine blister rust. What's all this about currant and gooseberry bushes?

EXPERT: -- Oh, I beg your pardon, I thought you understood about that. The white pine blister rust is a parasitic plant belonging to a group of fungi commonly called rusts. ----

SMITH: -- Then it is not caused by an insect? -

EXPERT: -- No --no. It is a fungus that lives just part of its life in the bark of white pine trees. The rest of its life is spent on the leaves of currant or gooseberry bushes. If it doesn't have currant or gooseberry bushes, it can't complete its life cycle and dies without spreading.

SMITH: How does it spread from the bushes to the trees?

EXPERT: On the pine tree, you see, this rust produces in the spring small orange-yellowish blisters. When those blisters open they let out millions of tiny spores -----

SMITH: Tiny what? --

EXPERT: Tiny spores -- the seeds of the rust.

SMITH: And then the wind blows those seed, I guess, --- huh?

EXPERT: Exactly. Those spores blown by the wind infect the leaves of currants or gooseberries causing rust-like masses to appear on the under side of the currant or gooseberry leaves. From the currants and gooseberries the disease spores are spread to the pines.

SMITH: How far can those spores travel that way?

EXPERT: Spores from diseased pine can be blown long distances, a hundred miles or more, and then infect the bushes. The spread in the reverse direction, from currants and gooseberries to pine, is usually not more than 900 feet under average forest conditions. ----

SMITH; But the spread the other way, from pines to bushes, is as much as a hundred miles!

EXPERT: Of course, that depends some on the species of gooseberry or currant. All currants and gooseberries are susceptible to the blister rust, but the European black currant is the worst of the lot. It is responsible for much of the fast spread and establishment of the disease in the United States. Instances are known of the blister rust being spread from pine to black currants 110 miles away.

SMITH: No wonder it is hard to stop --- What does it do to pines? Can you control it at all?

EXPERT: In many local areas the pines within a radius of one-half mile of the currants and gooseberries have suffered severely. In generally infected regions the healthy trees are fast becoming infected. Today, in New England and New York one-tenth of the white pines over large areas are diseased. In many small areas over 50 to 100 per cent of the pines are dead or dying from the rust. In unprotected areas the white pine reproduction is killed off soon after it appears. Locally, however, we can control it effectively, because of the weak points in the life of the fungus.

SMITH: What are the weak points?

EXPERT: Well, the fungus can spread to pine only by means of the fall spores produced on currant and gooseberry bushes. The spores are so delicate and so short-lived that under average field conditions pines growing more than 900 feet from diseased bushes are not appreciably damaged. For that reason, under normal forest conditions, practical local control can be accomplished by eradicating all currant and gooseberry bushes within 900 feet of the pine to be protected.

SMITH: Well, where did blister rust come from in the first place?

EXPERT: It is native of Europe. It was introduced into North America about 1898 on nursery stock. About 1910 the rust was introduced into British Columbia on white pine nursery stock from France. From British Columbia it has spread into the northwestern states.

SMITH: What is being done to control it?

EXPERT: Since the beginning of control work in 1917 over 61 million wild and cultivated currants and gooseberries have been destroyed in

New England and New York, over a section bigger than the entire land area of Rhode Island and Massachusetts. The federal government is cooperating with the various states in conducting the campaign to protect the white pine. In the eastern states a systematic rust control campaign was started in 1922 and a western blister rust control program was begun in 1924.

SMITH: The big idea is to kill off the currant and gooseberry bushes near the pine trees?

EXPERT: Yes, but it is necessary to know the different species of currants and gooseberries and to use systematic methods of work to get rid of them. The ground is carefully gone over usually by a crew of five men working abreast. The little bushes are pulled up by hand and the big ones uprooted with a grubber. Thoroughness in removing the crown and roots prevents sprouting. Even at that it is necessary to go over the same ground once in each 7 years to destroy the small bushes which spring up from seed. The bushes should be hung up where the roots will quickly dry out or they may continue to live.

In several States, the black currant has been declared a public nuisance. Cultivated black currant bushes have been completely eradicated in Montana, Idaho, Washington, and Oregon, and about two-thirds of the State of California. Similar action is being taken in some of the eastern states. Quarantines are also in force to prevent the spread from infected regions to non-infected regions.

Where control has been practiced for five to ten years within the heavily infested regions the disease has been effectively checked and white pine forests are being grown without danger of commercial damage from blister rust.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

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Southern States

U. S. RADIO FARM SCHOOL

Monday, Jan. 30.

(NOT FOR PUBLICATION)

Crops and Soils Meeting No. 18 (b)

SUBJECT: Preparing and Planting the Farm Garden.

ANNOUNCEMENT: Yes, this is the regular Monday meeting of our farm club. You know, our farm club meets here in the school-house three times a week. That expert from the Department of Agriculture is one of our members. He gives us a lot of good information ---- Yes, that's the one I mean; the man up there by the desk, with the bunch of men crowded around him ----- Move up closer and you can hear what they are saying --------

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EXPERT: Now's the time to plant English peas, lettuce, spinach, cabbage, potatoes, and a lot of other garden stuff in the Southern states.

JONES: But, why bother with a garden anyway? It's a lot easier to plant one or two more acres of cotton and then buy vegetables for the table, with what we get from the extra cotton.

EXPERT: That may be all right in theory, but it just don't work. Nice fresh vegetables don't grow in a grocery store or in tin cans. Then, too, you can't always get into town; so the family has to do without vegetables. Isn't that right?

JONES: Well, of course, it may work that way sometime ----

EXPERT: But just think, Jones, with a garden right on the place, mother or one of the girls can just slip out and get a nice lot of peas, beans, carrots, tomatoes, sugar corn or what not. By the time father and the boys come in to dinner, the vegetables are all ready to eat along with the bread and meat and other food.

JONES: Well, raising a good garden is easier said than done. How can I have a good garden, for instance?

EXPERT: First, just select about a half-acre of good land.

JONES: Where?

EXPERT: Somewhere near the house. Build a chicken-proof, dog-proof, hog-proof, and every other proof fence around it. Then run some drainage ditches around it to carry off the water. Then haul in several loads of well rotted barn-lot fertilizer and spread it over the ground. Then you are ready for plowing; and

make it a real plowing, too.

**JONES:** What would you call a "real plowing"?

**EXPERT:** A plowing that will turn the soil 7 to 10 inches deep. One that turns under the fertilizer completely.

**JONES:** Suppose the ground is sour?

**EXPERT:** In that case, you will need to spread some lime on the surface after plowing. Next harrow the land until the soil is loose and mellow. Then lay it off in long, straight rows so that you can cultivate your garden with a horse.

**JONES:** Would you use any commercial fertilizer?

**EXPERT:** It would probably pay you. Eight hundred or one thousand pounds of a good mixture of nitrate of soda, cottonseed meal, acid phosphate, what they call super-phosphate nowdays, and muriate of potash, will be about right.

**JONES:** Radishes, and beets, and lettuce, and spinach, and peas --- they should be planted early, shouldn't they?

**EXPERT:** Yes, very early. Also onion sets, frost-proof cabbage plants and early potatoes. One ounce of radish seed will plant 150 feet of row, one quart of peas will plant 150 feet of row and a pound of spinach will plant a bed 6 feet wide and 150 feet long. When the weather gets a little warmer, you can plant both green and wax podded snap beans. Also sugar corn and carrots. A little later you can plant summer squashes, bush lima beans, cucumbers, melons, okra, New Zealand spinach, tomato and pepper plants and plenty of other good things. You can gain time by starting early plants in a plant bed or by buying them from plant growers.

**JONES:** The trouble is that weeds grow so fast here in the South. If it hadn't been for hoeing and pulling weeds, I would have a garden every year.

**EXPERT:** Well, the real secret of keeping crops free from weeds is not to let the weeds get a start. Cultivation of the crops should be often enough to keep out the weeds. By going through the rows with a horse cultivator about once a week, you can control the weeds with very little hand hoeing.

**JONES:** But weeds are not the only thing a gardener has to fight. There are the insects and the plant diseases.

**EXPERT:** Yes, I know. Plant lice are among the most troublesome. They suck the juices of the plants and also spread diseases from one plant to another. But a good dusting with about three per cent nicotine dust when the weather is hot and the plants dry will kill the plant lice. The way to get good control and prevent real damage is to dust the plants before the lice get a good start.

Flea beetles are another garden pest, especially on young tomato and eggplants. You can either kill the flea beetles or drive them away by dusting

with lime to which is added a little powdered arsenate of lead. Bacterial wilt such as tomato wilt and cucumber wilt are troublesome. The striped cucumber beetle has been found guilty of carrying cucumber wilt from one plant to another, as have also the plant lice. If you control those insects in their early stages, you will have less trouble later. In the case of tomato wilt, there are some splendid varieties such as Marglobe and Norton which are wilt-resistant.

JONES: That reminds me, the seed catalogues are always showing new varieties of vegetables and claiming wonders for them. How about those new varieties?

EXPERT: They may or may not be any better than the old standards that cost about a fourth as much, but they are often worth trying. Among the best peas are Alaska, Thomas Laxton, Gradus, and Little Marvel. Bonny Best and Greater Baltimore are good early tomatoes, but recently the new variety known as Marglobe has been the favorite. The Ebenezer or Japanese onion is a good keeper but lots of folks are getting a supply of seedling plants of the Bermuda onion and growing it quite successfully. When it comes to early potatoes, we naturall think of Irish Cobbler and Triumph as the best for southern conditions. For sweet potatoes Nancy Hall and Porto Rico are hard to beat. Don't forget about the spinach, lettuce, Swiss chard and for summer, the New Zealand Spinach. Chantenay and Danvers Half Long carrots grow quickly. Snap beans, not stringy beans, are one of the best crops for the home garden. I'd like to see every southern farm have a garden.

JONES: I think I'll get busy and have me one this summer.

EXPERT: Good. And keep it going right through the summer and fall. Then if the boll weevil plays havoc with your cotton, you can still live at home and be happy.

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